

**INTERNATIONAL SEARCH REPORT**

International Application No  
PCT/EP2004/008957

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 B01J23/89 C07C5/32 C10G45/00

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 B01J C07C C10G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3 212 255 A (PUTT JOHN W ET AL) 19 October 1965 (1965-10-19) column 1, line 66 - line 68 column 2, line 22 - line 26; claim 1 -----	1,8
X	WO 01/68571 A (GRIFFITHS DAVID CHARLES ; BP CHEM INT LTD (GB); BINMORE GAVIN THOMAS ) 20 September 2001 (2001-09-20) page 6, line 10 - line 31; claims 1,2,9 -----	1,2,8
X	GB 2 353 734 A (INST FRANCAIS DU PETROL) 7 March 2001 (2001-03-07) page 4, line 11 - line 16; claims 1,22,28-30 -----	1,2,6,8
X	DE 25 38 098 A (BRINCKMANN HARBURGER OEL) 10 March 1977 (1977-03-10) page 8, paragraph 3; tables 1,3 -----	1,6,8
		-/-

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

\* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the International filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the International filing date but later than the priority date claimed

- \*T\* later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*Z\* document member of the same patent family

Date of the actual completion of the International search

26 October 2004

Date of mailing of the International search report

09.02.2005

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**C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 152 975 A (ELLIOTT DOUGLAS C ET AL) 28 November 2000 (2000-11-28) column 4, line 12 - line 18; claims 1,2,4 -----	1,6,8
X	GB 1 160 872 A (VARTA AKTIENGESELLSCHAFT) 6 August 1969 (1969-08-06) page 2, line 20 - page 3, line 86; claims 1,4,5,7 -----	1,2,6,8

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/EP2004/008957

### Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claims Nos.: because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
  
3.  Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

### Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1.  As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
  
2.  As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
  
3.  As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
  
  
4.  No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1,2,8

#### Remark on Protest

The additional search fees were accompanied by the applicant's protest.  
 No protest accompanied the payment of additional search fees.

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1,2,8

dehydrogenation process

1.1. claim: 6

hydrogenation process

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2. claim: 3

SO<sub>2</sub> oxidation

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3. claim: 4

NO reduction with CO

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4. claim: 5

CO methanisation

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5. claim: 7

ethane hydrogenolysis

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**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International Application No  
**PCT/EP2004/008957**

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
US 3212255	A	19-10-1965		NONE		
WO 0168571	A	20-09-2001		AU 3393801 A 24-09-2001 BR 0109274 A 17-12-2002 CA 2401859 A1 20-09-2001 CN 1418181 T 14-05-2003 EP 1263699 A1 11-12-2002 WO 0168571 A1 20-09-2001 JP 2003527362 T 16-09-2003 NO 20024400 A 13-09-2002 ZA 200206811 A 03-07-2003 TW 588030 B 21-05-2004		
GB 2353734	A	07-03-2001		FR 2792645 A1 27-10-2000 FR 2792644 A1 27-10-2000 FR 2792548 A1 27-10-2000 DE 10020049 A1 11-01-2001 JP 2000334302 A 05-12-2000		
DE 2538098	A	10-03-1977		DE 2538098 A1 10-03-1977		
US 6152975	A	28-11-2000		US 5977013 A 02-11-1999 AU 726925 B2 23-11-2000 AU 5727598 A 15-07-1998 BR 9714231 A 18-04-2000 CA 2275310 A1 25-06-1998 CN 1246076 A 01-03-2000 WO 9826868 A1 25-06-1998		
GB 1160872	A	06-08-1969		AT 276310 B 25-11-1969 BE 687964 A 16-03-1967 CH 497920 A 31-10-1970 DE 1542552 B1 18-06-1970 DE 1542556 A1 08-10-1970 DE 1546730 B1 06-05-1970 FR 1509966 A 19-01-1968 NL 6614162 A 10-04-1967 US 3573038 A 30-03-1971		